

*Newman (Robt)*

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# Progress of Electrolysis IN SURGERY.

BY

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ROBERT NEWMAN, M.D.,

*Surgeon to the North-Western Dispensary, New York.*

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Read at the first annual meeting of the Fifth District Branch of the  
New York State Medical Association, held at  
Brooklyn, October 13, 1885.

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# PROGRESS OF ELECTROLYSIS IN SURGERY.

BY ROBERT NEWMAN, M.D., New York,

Surgeon to the Northwestern Dispensary.

At the meeting of the American Medical Association in 1883, held at Cleveland, I read a paper on "Electrolysis in Surgery; and Tabular Statistics of One Hundred Cases of Urethral Stricture." When that article was in press, a fire melted the type and burnt up a part of the manuscript. That was the reason why the paper appeared later in two parts; one being published in the *Journal of the American Medical Association* of April 25, 1885, and the other, containing particularly the statistics, in *The New England Medical Monthly* for August, 1885. This paper presented a retrospective view of the work accomplished in surgical electrolysis up to May, 1883. As time and space were limited, no detailed report could be attempted, and therefore the brevity of the notes makes it resemble more an index of the subject, with references for detailed study, but embracing, in addition, some new researches.

The object of the present paper is to narrate what has been done in surgical electrolysis in the last two years; which makes it almost a continuation of the former article. It is a clinical record, without repetitions of former reports, theories, or descriptions of instruments. During these last two years some good work has been done by reliable men, which confirms the experience and reports of former periods. The only new work appears to be the application of the method to hernia and hemorrhoids, by Dr. Craft; and with this we begin our report.

## THE RADICAL CURE OF HERNIA BY ELECTROLYSIS

is new and original. It has not been published before, and the information concerning it has been received through private correspondence with the successful operator, Dr. J. Craft, of Cleveland, a member of the American Medical Association, who has also operated for hemorrhoids in the same way. I cannot present the matter better than by giving verbatim the doctor's statement. The following are extracts from his letters:

CLEVELAND, O., May 7, 1885.

ROBERT NEWMAN, M.D.,

*Dear Doctor:* I have read with much interest your article on "Electrolysis in Surgery" and its special application to urethral strictures. I can most heartily endorse all you say on its application to strictures, having given it considerable attention.

I have been using electrolysis in two difficulties that you do not speak of,



namely, hernia and hemorrhoids. I have applied a positive needle electrode, properly insulated, except at point, subcutaneously between the external and internal rings, and allowed a sufficient galvanic current to pass between the poles to excite quite an adhesive inflammation; being careful not to injure the cord, and to keep the needle external to the peritoneum. This results in a cicatricial sealing up of the inguinal canal, and in many cases seemingly permanently.

CLEVELAND, O., May 21, 1885.

Yours of the 16th inst. came duly to hand, and in reply I would say that it will give me pleasure to communicate to you my experience with electrolysis in the treatment of hernia and hemorrhoids. It occurred to me some time ago, while reading the method of Heaton, of Boston, for the cure of hernia by the subcutaneous injection of some irritant fluid into the inguinal canal, between the internal and external rings, that the same, and even better, effects might be produced by electrolysis, with less danger and as little pain as is produced by subcutaneous injection.

In operating, the hernia should be reduced first, and the sac carried up with it, if possible. Invaginate the index finger in the scrotum, following the cord to the external ring, keeping the cord and sac, if it remain in the ring, well pressed to one side, and held there beneath the invaginated finger, which should be pushed into or through the external ring if possible. Then, with a sharp-pointed bistoury, prick through the skin over the external ring. Through this puncture push a blunt-pointed needle electrode, insulated to within an inch of the end; carrying it well up between the rings, by the side of the invaginated finger, which holds the cord and vessels from contact with the electrode. Connect the circuit of about ten cells of a good galvanic battery, continuing the circuit for about six to ten minutes, according to the sensibilities of the patient; changing the point of the electrode from one side of the finger to the other, always keeping it as clear of the cord as possible, and directing the current from the cord. The other electrode can be held by the patient in the hand of the side operated upon, or elsewhere, as is desirable. You ask why I use the positive pole instead of the negative. For the reason that the positive is not so painful as the negative, and, being the acid pole, I conceived it would excite sufficient irritation and inflammation, and at the same time coagulate blood in the smaller vessels, thereby creating a harder cicatricial or adhesive inflammation than the negative or alkaline pole. I think the negative pole softens tissues, and will cause absorption of already formed cicatricial tissue. But in hernia, we want a hard, adhesive inflammation excited, thereby effectually sealing up the rings and canal. The more inflammation excited, so that the cord or vessels are not injured and it falls short of suppuration, the more radical will be the effect. There is no foreign matter deposited, as is the case in subcutaneous injections, to form a nucleus for suppuration. The patient should lie in bed for at least two weeks, and then use a well fitting truss for some time, until the parts become strong and firm.



CLEVELAND, September 29, 1885.

Yours of a recent date, asking me to give you a history of the cases of hernia treated by myself by electrolysis, was duly received. I operated upon three cases of hernia in the spring of 1884, while living in the State of Minnesota.

In the succeeding fall of '84 I was obliged to leave Minnesota, on account of a disease of one of my eyes contracted some four years ago. So I sold out, and moved to this city, my former home. Consequently, I cannot give you as full details of the cases as I would like. The cases I operated upon were all very similar—good healthy workmen, two of whom were section-hands on a railroad, and Norwegians; the other was an American farm-hand. The herniæ were all of comparatively recent date, caused by straining, in lifting heavy loads or jumping from a height. They were common oblique herniæ, through the external ring, but had not descended into the scrotum. One of the Norwegians returned to his native country about three months after I operated upon him; at that time he was well, and had done ordinary work, after recovery from the operation, until he left. Since that time, I have not heard from him. The other two patients had no return of the hernia, up to the time I left the State, about six months after the operation, and were working at their ordinary day labor. Since then I have heard nothing of them up to this writing. I may yet hear from them, and if so, will report the state of the case to you. Etc.

Truly yours,

J. Craft, M.D.

#### HEMORRHOIDS

have also been successfully treated by Dr. Craft, of Cleveland. He describes his method as follows (extracts from Dr. Craft's letters): In hemorrhoids, I apply the positive needle also, yet in a few cases I have applied the negative, but do not get such decided cicatrizing, and shrivelling up of the pile, as with the positive. I select the particular pole according to the peculiarities of each individual case.

If I want to absorb the pile, I insert the negative; if I desire to seal up the vessels by adhesive inflammation, I use the positive needle.

This closes the interesting report of Dr. Craft, which needs no other comment but the wish that other operators may test his method for the radical cure of hernia.

Our report further consists of the successful application of electrolysis in aneurism, port wine marks, epilation, uterine tumors, and strictures of the Eustachian tube and the œsophagus.

#### ANEURISM OF THE AORTA.

Dr. Francesco Brancaccio, in the *Revista Internaz. di Med. e Chir. Napoli*, 1884, I. Pp. 73-79, reports one successful case. The patient was 64 years old, and the aneurism was seated in the ascending aorta. A fifteen-cell Daniell's battery was used, and two needles were introduced into the sac, 1½ inches



apart, at a depth of 1 1-5 inches. The galvanic current was kept up for sixteen minutes. Twenty days after, the operation was repeated. Four séances completed a perfect cure.

#### PORT WINE MARKS.

In a paper read before the American Dermatological Association, August 27, 1885, Dr. W. A. Hardaway, of St. Louis, says that he had success by using a single needle, which he prefers to a bundle of needles, formerly employed. After each operation he applies hot water, to allay the inflammation. Other members of the Society, Drs. C. Heitzmann, J. C. White, and G. H. Fox, had less satisfactory results, but reported considerable improvement and partial success.

#### EPILATION.

Dr. C. Heitzmann, of New York, in a paper, also read before the American Dermatological Society, August 27, 1885, extols electrolytic epilation. He uses six cells, of a Leclanche battery, and a needle made by Leiter of Vienna, which is so constructed that the depth of penetration can be measured and graduated. He has had good results from electrolytic destruction of dilated blood-vessels in the face.

#### UTERINE TUMORS.

There is a diversity of opinion in the profession about the practicability or even possibility of curing uterine and ovarium tumors by electrolysis. Skepticism in regard to the matter may be said to predominate, but the only justification for this is the contradictory reports of operators. Some relate their great successes, while others have failed utterly in their attempt; some have improved their patients, or diminished the size of the tumor materially without eradicating it, and some too sanguine surgeons have prematurely reported successes when afterward relapses have occurred. These apparent contradictions can be understood by carefully considering the subject. The nature and size of these tumors are just as different as the quality of the operators; and some tumors are amenable to treatment, while others are not. It may be difficult to make correct diagnosis and prognosis. The general state of the patient, her vitality, intercurrent diseases, and other circumstances, play also important parts in the result. Again, there is a difference in operators, and if some have not the capacity of endurance to succeed, others possess these requisites. Whoever knows the power of electrolysis will have confidence that uterine fibroids and other tumors can be cured by this method. There are on record such reports from good and reliable men, whose statements must be believed and put on record without any possible doubt.

Reckless statements and failures do not disprove other reliable successes. The additional accumulation of positive cures in our present report comes from four trustworthy men of good professional standing, and the results recorded constitute very valuable contributions to the progress of electrolysis, which ought to serve as a strong stimulus to others for further investigations and for



the accomplishment of similar results. They comprise more than 100 cases, and are as follows :

Dr. J. N. Freeman, of Brooklyn, in a paper read before the Medical Society of the County of Kings, January 20, 1885, reports three successful cases of uterine fibroids. The first case was operated on in 1876, and cured in eight séances. The patient is well to-day, after the lapse of nine years. He varies his *modus operandi* according to indications. In one séance he used as the positive pole a platinum probe in the uterine cavity, and as the negative pole a straight steel needle, insulated to within half an inch of the point, passed through the cul-de-sac and into the tumor. The current was increased to twenty-eight cells for thirty-two minutes. At another séance the positive pole was a large sail needle, insulated to within an inch of the point, passed through the cervical canal into the tumor; while the negative was a straight round needle, insulated as before, and passed through the abdominal wall into the tumor, a current of sixteen cells being employed for fifteen minutes. The interval between the séances was from ten days to six weeks. In these three cases the operations required were two, eight, and five respectively, all under an anæsthetic. He uses the electrolysis in interstitial or subperitoneal fibroids.

J. T. Everett, A.M., M.D., of Clyde, Pa., reports seventeen cases of fibroids and one goître in the *New York Medical Journal*, April 18, 1885. His treatment is a mixed one, by the faradic as well as the galvanic current, and even operative procedure. His method of using electrolysis is rather heroic, in one case seventy cells being used.

Dr. Apostoli, of Paris, at the International Medical Congress at Copenhagen, August 10, 1884, proposed a new electrolytic treatment for uterine fibromata, characterized by very feeble electrical intensity, and by the vagina being oftenest the point of application of the positive pole. A clinical experience extending over two years, upon over 100 cases, had shown that the treatment constantly reduced the size of the uterus, and completely restored the patient.

Dr. Menière, of Paris, also at the International Medical Congress at Copenhagen, 1884, advocated the destruction of uterine tumors by electrolytic puncture. He applies the treatment across the abdominal wall, and the method has been practiced by several other surgeons. He had marvellous results in six cases. He uses : 1. A battery of the continuous current of twenty-four cells; 2. Gold needles ten centimetres long, by one and a half millimetres thick, lance-shaped, and with cutting edges; 3. A needle propeller, with a graduated stop-notch; 4. Conducting wires. The operation is repeated twice a week, or less frequently, each sitting lasting twenty minutes.

#### STRICTURE OF THE EUSTACHIAN TUBE.

At a meeting of the Académie de Médecine, March 11, 1884, M. Mercier read in his own name and that of M. Garriçon-Desarènes a note upon the treatment of stricture of the Eustachian tube by electrolysis. The operation consisted



in passing a fine silver sound into the Eustachian tube, and a small olive-shaped electrode into the external auditory meatus. A feeble current is then passed, the sound is gradually pushed on, and the stricture disappears.

#### STRICTURE OF THE ŒSOPHAGUS.

Brilliant results of electrolysis in this affection have been recorded previously. Only one peculiar case can be added in which electrolysis produced a cure in conjunction with gastrotomy. This case was reported by Professor H'jorth, of Christiania, at the International Medical Congress in Copenhagen. The stricture was caused by the patient swallowing an alkali. The contraction following of such a nature that no sound would pass below the cricoid cartilage, and swallowing was nearly impossible. Gastrotomy was resorted to, and electrolysis applied at the part. The current was commenced with five cells, gradually increased to fifteen cells. After one hour the electrode bougie suddenly passed through the stricture. The second application was made after twelve days, after which the stricture was so well cured that the patient could eat and swallow both solids and fluids, and a Charrière bougie No. 19 passed through the former stricture both ways, from below and above. Two weeks later the gastric fistula was closed by operation. The prognosis in œsophageal stricture is almost always grave. The elaborate statistics by M. Petit, of Paris, of 155 operations show only two per cent. of cures and seventy-five per cent. of deaths. Therefore electrolysis in œsophageal strictures must necessarily play an important part in the treatment in future.

It will be observed from the foregoing that methods and instruments for electrolysis vary somewhat, and while they all may be good, the author of this paper has only related the facts, without making any comments. For those who wish to learn more details, the following references will be useful:

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